DECEMBER, 1905.

ENTOMOLOGICAL NEWS

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Cryptohalictoides spiniferus Viereck.

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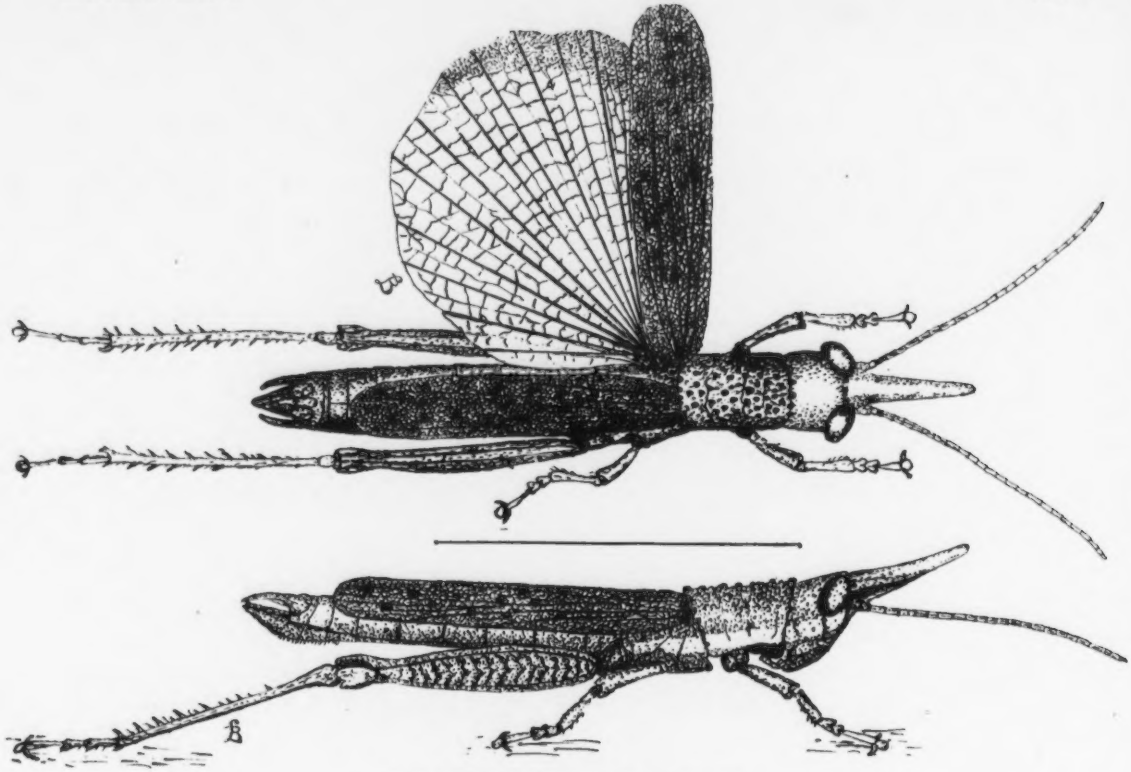

SCOLOCEPHALUS MIRABILIS BRUNER.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

VOL. XVI. DECEMBER, 1905. NO. 10.

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Two Remarkable New Costa Rican Locusts.

BY LAWRENCE BRUNER, University of Nebraska.

(Plate XI)

While working over the material that has been amassed for the purpose of preparing the manuscript for that portion of the Biologia Orthoptera dealing with the locusts or short-horned grasshoppers, a number of very interesting forms have been encountered. From among these, two have been singled out as being unusually remarkable.

Since preparing the table for separating the subfamilies of these insects that were known at the time to be represented in the territory covered by that great work, an additional subfamily for North America has come to light. This occurred among some very interesting things that were taken in southern Costa Rica, a region which, if carefully explored, would no doubt add to our Central American fauna many striking forms of Acrididæ belonging to South American genera, as well as those indigenous to the region itself. It is too bad therefore that no more careful field work has been done in the way of amassing material belonging to this greatly neglected family in that sec-

tion of country. Most collectors appear to be but little interested in the various locusts or short-horned grasshoppers as they occur in localities being worked, but rather take to collecting the more brightly colored katydids and their allies. Only a specialist, and one thoroughly trained in tropical collecting, would seemingly succeed in bringing together the greater percentage of locusts that are to be found in those rich but difficult regions to work.

Family PROSCOPIDÆ.

Genus **TAXIARCHUS** Brunner.

Taxiarchus septentrionalis sp. n.

Size large. General color dirty olive brown, the only variation from this being faint indications of darker mottlings on the hind femora which tend to cluster so as to form obscure bands on the basal half. Prothorax quite coarsely and evenly granulate, the lower surface as well as top and sides being thus modified. The only exception to this kind of surface over this portion of the insect's body is a narrow, even, smooth strip on the sternum which extends from the base of the front legs to the back edge of the prosternum. In the male this smooth portion is lowered or sulcate and has the appearance of being bounded by broad low carinæ. The surface of the meso- and metathorax is also granular, but to a less degree than that of the prothorax, while their sterna are almost smooth. The sides of the mesopleura while not crenulate, as indicated in Brunner's diagnosis of the genus, suggest a trace of such a characteristic to a sufficient degree to permit of its being placed here. Anterior legs with the femora about two-thirds as long as, and arising a little back of the middle of the prothorax. The hind pair moderately heavy; the tibiæ strongly bowed, considerably longer than the femora, and having 19 or 20 spines in the outer row.

Length of body, ♀, 147 mm.; ♂, 72 mm.; of head, ♀, 20 mm.; ♂, 12.5 mm.; of fastigium, ♀, 3 mm.; ♂, 2.20 mm.; of pronotum, ♀, 37 mm.; ♂, 19 mm.; of anterior femora, ♀, 22.5 mm.; ♂, 10.5 mm.; of hind femora, ♀, 50 mm.; ♂, 24 mm; of hind tibiæ, ♀, 54 mm.; ♂, 26 mm.

The above description is based on two specimens, a male and a female, which were collected during the month of June at Pozo Azul, Costa Rica, by M. A. Carriker. He told me that they were found on the trunk of a tree where they were so well protected by their color that they were only accidently discovered. Thinking at the time that they were Phasmidæ he did not make a search for others.

Genus **SCOLOCEPHALUS** nov. gen.

This genus of locusts is at once characterized by the spike-like prolongation of the vertex in front of the eyes, by the wide parallel-sided tegmina, the large fan-shaped wings, and the cylindrical strongly tubercled pronotum. It is further differentiated by the long, heavy antennæ, the broadly concave meso- and metasternum, and the long slender abdomen, all of which characters are well shown in the accompanying dorsal and lateral views of *Scolocephalus mirabilis* which is described herewith.

Scolocephalus mirabilis n. sp. (Plate XI.)

Dark brownish olivaceous, varied on cheeks below the eyes, lower portion of sides of pronotum and pleura with a rather wide testaceous band. Inner face of hind femora deep blood-red. Tegmina dark olive brown, the veinlets paler, and the surface faintly and irregularly maculate with dull fuscous markings. Wings dark chrome yellow, the apex somewhat infuscated. Hind tibiæ internally and inner gena of femora black, the outer face dirty olive brown. Pectus and venter yellowish, the abdomen above, especially apically and at the apex of segments, dull olivaceous. Eyes æneous.

Head large, a trifle broader than the front edge of the cylindrical pronotum; occiput moderately elongate, smooth; vertex between the eyes about as wide as the shortest diameter of one of them, and provided with a transverse ridge composed of three coalescing tubercles, just in front of this suddenly depressed and giving to the anterior part of the vertex the appearance of being separated from the fastigium. The latter greatly attenuate, rounded and nearly regularly tapering as shown in the illustrations, the sides gently undulate or sinuous, and provided with two series of small acute tubercles; the extreme apex rounded. Frontal costa linearly produced to the apex of fastigium, near the base furcate and sulcate to the ocellus, obsolete below this. Face from base of antennæ to clypeus short, the lateral carinæ straight, gently diverging, considerably longer than the cheeks below them. Pronotum cylindrical, rough as well as punctate, without carinæ, the anterior and posterior margins broadly rounded and studded with large blunt tubercles as is also the most of the intervening surface; hind lobe about half as long as the anterior one. Tegmina and wings considerably shorter than the abdomen, but a little surpassing the tip of the hind femora, the former broad, with straight veins, parallel edges and broadly rounded apex; the latter short and broad with few irregular veinlets. Hind femore elongate, but gently inflated and only slightly attenuated apically, the pinnæ on the outer face somewhat irregular; tibiæ hairy, rather deep on basal, gently bowed inwardly and more slender on apical half, outer edge seven spined, the

two upper ones small, the apical one present and nearly as long as the others. Hind tarsi long and slender, the first and second joints subequal in length. Tip of abdomen very gently enlarged, the last ventral segment acuminate and in the middle carinate, the apex entire; supra-anal plate scutellate on basal half, attenuate and bent gently downwards on apical half; cerci long and slender, directed backwards and bowed inwards distally. Mesosternal lobes with their inner edges rounded and about one-half as widely separated as the width of one of the lobes. Prosternum long, the spine located near its front edge, short, blunt and directed gently to the rear.

Length of body, ♂, 54.5, of antennæ, 21.5, of fastigium, 9.75, of pronotum, 8, of tegmina, 27, of hind femora, 19 millimeters.

Habitat.—Taken at Pozo Azul, Costa Rica, Central America, in June, by C. F. Underwood. (Collection of L. Bruner.)

From the general appearance of the insect, its somber color, its gently concave breast, the long and slender tarsi and strong claws, etc., it is surmised that it has the habit of clinging to the stems of plants in shady places. The female is without doubt much larger, and is apt to have peculiar modifications of the ovipositor.

A Review of a Review.

By Henry Skinner.

Dr. Dyar, in the Journal of the New York Entomological Society, p. 207, December, 1905, devotes eleven lines and three words to telling the readers of the Journal what he knows about a supplement * published by myself. He says: "*It is somewhat bristling with typographical errors and blunders, but we are used to that sort of thing from Philadelphia.*" The Washington editor of the New York Journal could have used the space to better advantage by pointing out those blunders and the entomological world would have been the gainer thereby. Review by innuendo is of no use to anyone except to vent spleen. I don't know whether the words "*but we are used to that sort of thing from Philadelphia*" is a gratuitous insult to me or to all the Philadelphia entomologists, including the illustrious dead. Now Dr. Dyar has been laboring under a hallucination in relation to what he is pleased to call my position in regard to

* A Synonymic Catalogue of North American Rhopalocera. Supplement No. 1. By Henry Skinner.

up-to-date genera. He says, "*it is easy to stigmatize what one will not take the trouble to understand.*" I have very carefully studied these up-to-date genera and also those proposed in the last thirty years and that is the reason I have not adopted them. If anyone familiar with the Hesperidæ will consult Dr. Dyar's review of the family* he will find generic fantasies to satiation, and will also see that in many cases the species in a given genus are more nearly related to species in other genera than they are to each other. Several examples of generic fantasies will suffice. The species *manataaqua* Scudder and *cernes* Bdl.-Lec. are so close that it is not unlikely that they are forms of one species, yet the former is placed in the genus *Limochroes* and the latter in *Thymelicus*, and these two genera are separated in his review by SEVENTEEN other genera. Associated with *manataaqua* are *arpa*, *palatka* and *dion* which are not closely related to it. The pinnacle of fantasy is illustrated by the following: Thirty-four years ago Mr. Scudder proposed the genus *Atrytone* without description, and cited as the type *iowa* Scudder (*arogos* Bd.—Lec). Dr. Dyar in his review erects the genus *Anatrytone* and places the type of *Atrytone* among the four species in his new genus and considers them congeneric. The species he places under *Atrytone* are not congeneric with the type. The so-called up-to-date genera are replete with this sort of thing, but space forbids dilating on it further. Dr. Dyar is sure of one man who won't swallow up-to-date genera on the imputation that he has never studied them.

The 'Biologia Centrali-Americana.'

[Those interested in the entomology of the United States, especially of their southern portions, will inevitably have their attention attracted more and more to the insect-fauna of Mexico and Central America. As entomological exploration of the region to the north of the Rio Grande and the Gila progresses, the greater will be the number of species found to be common to the United States and to Mexico. Although every writer, in the great series of volumes whose general title is that

* Journ, New York, Ent. Soc. XIII. III. 1905.

of this article, lays emphasis on the incompleteness of his contribution, there can be no doubt that the 'Biologia' will for all time be a, if not *the*, principal source of knowledge on the subject of which it treats. It has therefore seemed to the Editors of the NEWS desirable to present to our readers, and to place on record in a more permanent way, some of the historical and other information contained on the temporary paper-covers and prospectuses of the original parts in which the work has been issued. In doing so the Editors are greatly indebted to Mr. G. C. Champion, secretary of the 'Biologia.' They are aware that much of what follows can be found in one or another of the volumes cited, but they also do not forget that the majority of the readers of the NEWS are prevented from examining these tomes by distance from the larger libraries. The necessarily high cost precludes most private persons from possessing such a magnificent set of books.—P. P. C.]

The full title is "Biologia Centrali–Americana; or, Contributions to the Knowledge of the Fauna and Flora of Mexico and Central America. Edited by F. Ducane Godman and [until his death in 1898] Osbert Salvin . . . . . London: Published for the Editor by R. H. Porter, 7 Princes Street, [earlier 10 Chandos Street] Cavendish Square, W., and Dulau & Co., Soho Square, W."

The temporary covers of the earlier parts bear a prospectus; we quote from a cover of July, 1884:

"Under this title [Biol. Cent.-Am.] it is proposed to publish a series of Quarto Volumes upon the Fauna and Flora of Mexico and Central America—*i. e.* the whole of Mexico from the valleys of the Rio Grande and Gila on the north; the five Central-American States of Guatemala, Honduras, Salvador, Nicaragua, and Costa Rica; British Honduras; and the Colombian State of Panama as far south as the Isthmus of Darien.

"During the past twenty-two years [*i. e.* since 1857, see below] the Editors have been collecting materials for such a work as they now propose. They have themselves* visited parts of the country, and spent several years there; and during the whole of the above period they have received collec-

* Details are given in the Introductions to Vol. I of the Rhopalocera and Vol. 1 of the Birds by F. D. Godman.—EDS. NEWS.

tions from correspondents, and from naturalists specially employed in visiting many of the previously unexplored districts. The materials thus obtained have been partly retained by the Editors in their own Collection, and partly so distributed as to be most readily available for the present work. In addition to these materials, the Editors propose that all specimens obtained by other travellers should be examined, wherever they may be accessible so as to make the work as complete a record as possible of what is known of the Animal and Vegetable life of the country under investigation.

"The work will be issued in Zoological and Botanical Parts. Those relating to Zoology will contain portions of several subjects. When the work is closed each subject will be complete in itself; and the whole will form a series of volumes of various thicknesses, according to the extent of each subject. The Botanical Parts will contain no other subject.

"Each Zoological Part will contain twelve sheets (or 96 pages) of letterpress, and an average of six plates, most of which will be lithographs coloured by hand.

"Each Botanical Part will also contain twelve sheets of letterpress and an average of six plates, a few of which will be coloured.

"As it is proposed to include all the materials that may come to hand during the progress of the work, it is not possible to give an exact estimate of its extent; but it is believed that it will not much exceed 60 Parts, equivalent to *about 12 Volumes of 500 pages each, of Zoology* * and 20 Parts of Botany."

A prospectus issued with Part 73, in February, 1889, states "The issue (in Parts) . . . . . was commenced in September, 1879, and has been continued to the present time . . . . . The materials for this work have been gradually accumulated since the end of the year 1857; but during the past nine years, since the publication was commenced, the accessions in all branches of Zoology have been very great, so that the extent of the work has been largely increased. To give an idea concisely of what has been already done in the Insecta alone: the number of species of various orders examined and catalogued nearly reaches 15,000; of these upward of 7500 have been

* The italics are ours.—EDS. NEWS.

described in this work for the first time, and a very large number of them have been figured." This same prospectus announced a contribution to the Archæology of Central America—Mr. A. P. Maudslay on the chief Indian remains of Guatemala.

Part 187 was issued in March, 1905; with it the 'Biologia' had made the following progress. Completed were:

ARCHÆOLOGY.

Five volumes, A. P. Maudslay and J. T. Goodman, 386 pages, 392 plates, 1889-1902.

BOTANY.

Five volumes, W. B. Hemsley, 2517 pages, 110 plates, 1879-1888.

ZOOLOGY.

Mammalia, one volume, E. R. Alston, 240 pages, 22 plates, 1879-1882.

Aves, four volumes, O. Salvin and F. D. Godman, 1689 pages, 84 plates, 1879-1904.

Reptilia and Batrachia, one volume, A. Günther, 346 pages, 76 plates, 1885-1902.

Terrestrial and Fluviatile Mollusca, one volume, E. von Martens, 734 pages, 44 plates, 1890-1901.

Arachnida, four volumes, O. P. Cambridge, F. O. P. Cambridge, R. I. Pocock, and O. Stoll, 1099 pages, 126 plates, 1886-1905.

Coleoptera, thirteen volumes, 6648 pages, 254 plates, as follows:

Adephaga, H. W. Bates, 1881-1884, and D. Sharp, 1882-1887.

Pselaphidæ, etc., D. Sharp, A. Matthews, and G. Lewis, 1887-1905.

Pectinicornia and Lamellicornia, H. W. Bates, 1886-1890.

Serricornia, C. O. Waterhouse, G. H. Horn, G. C. Champion, 1882-1897.

Malacodermata, H. S. Gorham, 1880-1886.

Heteromera, G. C. Champion, 1884-1893.

Longicornia and Bruchides, H. W. Bates and D. Sharp, 1879-1886.

Phytophaga, M. Jacoby, J. S. Baly, and G. C. Champion, 1880-1894.

Erotylidæ, etc., H. S. Gorham, 1887-1899.

Hymenoptera, three volumes, P. Cameron and A. Forel, 1092 pages, 34 plates, 1883-1900.

Lepidoptera: Rhopalocera, three volumes, F. D. Godman and O. Salvin, 1315 pages, 113 plates, 1879-1901.

Heterocera (excl. Micros), three volumes, H. Druce, 1144 pages, 101 plates, 1881-1900.

Diptera, three volumes, C. R. Osten Sacken, S. W. Williston, J. M. Aldrich, W. M. Wheeler, A. L. Melander, and F. M. van der Wulp, 1019 pages, 21 plates, 1886-1903.

Rhynchota: Heteroptera, two volumes, W. L. Distant and G. C. Champion, 914 pages, 61 plates, 1880–1901.
Homoptera, one volume, W. L. Distant and W. W. Fowler, 157 pages, 13 plates, 1881–1905.
Orthoptera, one volume, A. de Bormans, A. Pictet, H. de Saussure, and L. Zehnter, 468 pages, 22 plates, 1893–1899.

At the same date, March, 1905, there had also been published parts of other incompleted volumes, as follows:

Chilopoda and Diplopoda, R. I. Pocock, 56 pages, 5 plates.
Coleoptera: Rhyncophora, parts of three volumes, D. Sharp, G. C. Champion and W. F. H. Blandford, 952 pages, 38 plates.
Rhynchota Homoptera, parts of two volumes, W. W. Fowler and T. D. A. Cockerell, 349 pages, 21 plates.
Neuroptera, A. E. Eaton and P. P. Calvert, 144 pages, 5 plates.
Orthoptera, L. Bruner and A. P. Morse, 152 pages, 1 plate.

The totals of all that had been published to that date were as follows:

Subject	Completed Volumes	Incompleted Volumes	Pages	Plates
Archæology	5		386	392
Botany	5		2,517	110
Zoology	40	8	18,518	1041
Totals	50	8	21,421	1,543

Of the volumes devoted to Zoology 29 completed and 7 incompleted refer to Insects. These 36 volumes treat of the following numbers of species:

	Total Number of Species	New Species Described
Coleoptera	15,293	9,659
Hymenoptera	2,202	1,053
Lepidoptera	5,444	1,672
Diptera	2,320	993
Rhynchota Heteroptera	1.700	870
" Homoptera	1,168	616
Orthoptera	877	310
Neuroptera	152	44
Totals (to March, 1905)	29,156	15,217

The following entomological subjects have not yet been started: Aculeate Hymenoptera and Neuroptera (other than Ephemeridæ and Odonata) for which no one, willing to under-

take them, has been found; Microlepidoptera, undertaken by Lord Walsingham; part of the Rhyncophora, undertaken by G. C. Champion and K. Jordan.

Our space limits do not permit us to give even a summary of the generalizations of the various authors. We can only mention that the general relations of the fauna of Mexico and Central America to others is especially treated in the Introductions by H. W. Bates to Vol. I, part 1, and Vol. V, D. Sharp to Vol. I, part 2, H. S. Gorham to Vol. III, part 2 and G. C. Champion to Vol. IV, part 1 of Coleoptera; by F. D. Godman to Vol. I of Lepidoptera Rhopalocera; and in several of the non-insectan volumes.

Most of the paper-covers of the original parts have announced that "The Editors will give, at the conclusion of the Work, an Introductory Volume, wherein the physical features of the country will be described and illustrated with maps." Mr. Champion informs us, however, that this has become doubtful, owing to the death of Mr. Salvin. In the present absence of such a volume, it may be mentioned that pp. 138–167 of Vol. IV of the Botany contain outlines of the geography and prominent features of the region.

Many of the contributing authors speak of the extent of the material which they have examined as "enormous." A first set of all specimens belonging to Messrs. Godman and Salvin, has, after completon of that part of the 'Biologia' concerned, been placed in the British Museum of Natural History. As stated in the NEWS for January, 1896, page 6, 61,800 specimens of Coleoptera had been received by the Museum from this source.

The 'Biologia,' a private undertaking, is thus well worthy of comparison with that other great English series of the late Nineteenth Century—the Challenger Reports, published by Government funds.

FIRST KATYDID.—Is that your daughter singing so sweetly in the next tree?

SECOND KATYDID.—Yes; you see her legs were cultivated in Europe.
—*Life.*

List of Micro-Lepidoptera Taken in Hampton, New Hampshire.

By S. Albert Shaw.

The town of Hampton is situated in the southeastern part of New Hampshire, and borders on the ocean. In the eastern part is a large tract of sand hills and salt marsh, comprising one-fourth of the area of the town, the marsh being as level as any prarie of the West. The rest of the land near the coast is remarkably level, but further back is more rough, though there are no hills worthy of the name. The uplands are well wooded.

Most of my collecting has been done within five minutes walk of my home which is near the northern border of the above mentioned marsh land. No collecting has been done in the northern part of the town.

In the following list are quite a number of records new to New Hampshire and several new to New England as far as I know.

With a very few exceptions the identifications have been made by Mr. Kearfott and Dr. Dietz to whom I would render grateful acknowledgment for their kindness.

It is the intention of the writer to publish additions to this list as new captures are made and identified.

Glaphria sesquistrialis Hübner

Lipocosma fuliginosalis Fernald, vii, 9.

Hymenia fascialis Cramer, vii, 14.

Diastictis argyralis Hübner, v, 10; vi, 4; ix, 3.

Pantographa limata Grote-Robinson, vii, 21; viii, 9.

Sylepta obscuralis Lederer, vi, 24; vii, 7.

Evergestis rimosalis Guenée, vii, 17

Evergestis straminalis Hübner, vi, 13; viii, 20.

Nomophila noctuella Denis and Schiffermüller, viii, 10.

Phlyctænia tertialis Guenée, vi, 10; viii, 27.

Cindaphia bicoloralis Guenée, vii, 5; viii, 27.

Loxostege chortalis Grote.

Pyrausta orphisalis Walker, vii, 18.

Pyrausta fumalis Guenée, viii, 13.

Pyrausta fodinalis Lederer, vi, 20; vii, 8.

Pyrausta acrionalis Walker, v, 30; vii, 26.

Pyrausta insequalis Guenée, vi, 24; vii, 21, ix, 7.

Pyrausta funebris Ström, v, 30; vi, 20.

Eustixia pupula Hübner, vii, 9; viii, 3; ix, 9.

Nymphula icciusalis Walker, vii, 4 and 30.

Nymphula maculalis Clemens, viii, 5
Scoparia basalis Walk., vii, 5; viii, 24
Hypsopygia costalis Fabricius, vii, 7; viii, 8.
Pyralis farinalis Linnæus, vi, 21; vii, 23.
Herculia cohortalis Grote, vii, 9.
Galasa rubidana Walker, vii, 7 and 11.
Schœnobius unipunctellus Robinson, vi, 1.
Schœnobius tripunctellus Robinson, vii, 15.
Schœnobius forficellus Thunberg.
Crambus hastiferellus Walker, vi, 5; viii, 25.
Crambus girardellus Clemens, vi, 27; vii, 9.
Crambus bidens Zell , vii, 14 and 24.
Crambus laqueatellus Clemens, vi, 11 and 21.
Crambus agitatellus Clemens, vi, 30; vii, 7; viii, 20.
Crambus albellus Clemens, vi, 13; vii, 20.
Crambus hortuellus Hübner, vi, 23; vii, 6; viii, 25.
Crambus perlellus Scopoli, viii, 4.
Crambus elegans Clemens, vii, 20; viii, 25.
Crambus vulgivagellus Clemens, viii, 20.
Crambus mutabilis Clemens, vi, 6; vii, 20.
Crambus trisectus Walker, vi, 6; vii, 7.
Crambus caliginosellus Clemens, viii, 1 and 20.
Crambus luteolellus Clemens, vii, 7; viii, 20.
Argyria nivalis Dru., vi, 29; vii, 20
Argyria auratella Clemens, vii, 19; viii, 5.
Galleria mellonella Linnæus, vi, 17
Acrobasis rubrifasciella Packard, vii, 9; viii, 6.
Mineola juglandis LeBaron, vii, 15
Salebria basilaris Zeller, vii, 7.
Epischnia boisduvaliella Guenèe, vi, 1 and 21.
Euzophera semifuneralis Walker, vi, 30.
Euzophera ochrifrontella Zeller, vi, 21.
Canarsia ulmiarrosorella Clemens, vii, 10,
Hulstea undulatella Clemens, vii, 3; viii, 3.
Homœosoma electellum Hulst, viii, 16.
Homœosoma reliquella Dyar.
Ephestia kuehniella Zeller, v, 21; vi, 1.
Peoria approximella Walker, vi, 19; vii, 15; viii, 3.

PTEROPHORIDÆ.

Platyptilia percnodactyla Walsingham, vi, 8.
Platyptilia marginidactyla Fitch.

TORTRICIDÆ.

Exartema zellerianum Fernald, vii, 20.
Exartema permundanum Clemens, viii, 8
Exartema fasciatanum Clemens, vii, 24; viii, 9.
Olethreutes nimbatana Clemens.
Olethreutes albeolana Zeller, v, 31; vi, 20; vii, 15; viii, 4.
Olethreutes interruptolineana Fernald, vi, 13.
Olethreutes hemidesma Zeller, vi, 30; vii, 25.
Olethreutes osmandana Fernald.
Olethreutes auricapitana Walsingham, vi, 13; vii, 18.
Olethreutes coruscana Clemens, vi, 15 and 25.
Olethreutes constellatana Zeller, vi, 9 and 17.

Olethreutes agilana Clemens, vi, 9.
Olethreutes instrutata Clemens, viii, 19.
Olethreutes campestrana Zeller.
Eucosma albiguttana Zeller, vi, 22.
Eucosma juncticiliana Walsingham, viii, 1.
Eucosma solicitana Walker, vi, 15; viii, 25.
Eucosma strenuana Walker, vi, 15; viii, 20.
Eucosma illotana Walsingham, vi, 3, 14, 30.
Eucosma desertana Zeller, vi, 14.
Eucosma otiosana Clemens, vi, 17.
Eucosma pergandeana Fernald, vi, ii.
Eucosma similana Hübner, ix, 12.
Eucosma dorsisignatana Clemens, ix, 4, 7.
Eucosma minutana Kearfott, viii, 10
Thiodia radiatana Walsingham, v, 30; vi, 17.
Thiodia olivaceana Riley, viii, 1.
Thiodia ferruginana Fernald, vi, 1, 19.
Thiodia striatana Clemens, v, 30; vi, 9.
Thiodia signatana Clemens, vi, 15.
Thiodia rufusana Walker, ix, 1.
Proteopteryx deludana Clemens, vi, 3.
Proteopteryx costomaculana Clemens, v, 12, 30.
Proteopteryx spoliana Clemens, var. iv, 10, 30.
Proteopteryx nubeculana Fernald, MSS. v, 15.
Tmetocera ocellana Schiffermüller, viii, 1.
Ancylis mediofasciana Clemens, v, 10.
Ancylis nubeculana Clemens, vi, 12.
Ancylis subæquana Zeller, vi, 12.
Ancylis lundana Fabricius.
Ancylis laciniana Zeller, vi, 1.
Ancylis dubiana Clemens.
Ancylis comptana Frölich, vi, 11.
Ancylis angulifasciana Zeller.
Ancylis apicana Walker, vi, 12.
Ancylis tineana Hübner.
Enarmonia interstinctana Clemens, vi, 11.
Ecdytolopta insiticiana Zeller, vii, 3.
Hemimene simulana Clemens, vi, 18
Cydia pomonella Linnæus, vi, 6, 11.
Alceris effractana Frölich, v, 1900.
Alceris trisignana Robinson, iv, 4.
Alceris nigrolinea Robinson, x, 2.
Alceris brewsteriana Robinson, v, 10.
Alceris celiana Robinson, x, 28.
Alceris hastiana Linn. var. *maculidorsana* Clemens, x, 28.
Alceris hastiana Linn. var. *inana* Robinson.
Alceris viburnana Clemens, vii, 30.
Alceris ferrugana Schiffermüller, x, 31.
Alceris cervinana Fernald, iv, 12.
Epagoge sulfurena Clem., viii, 24.
Sparganothis puritana Robinson, vii, 14, 31.
Sparganathis xanthoides Walker, viii, 28.
Sparganothis irrorea Robinson, vi, 26.
Sparganothis violaceana Robinson, v, 23; vi, 3.
Archips rosaceana Harris, vii, 19; viii, 14, 16.
Archips purpurana Clemens, vii, 24; viii, 4.
Archips cerasivorana Fitch, vii, 4.
Archips argyrospila Walker, vii, 3.
Archips semiferana Walker, v, 30; vi, 25.
Archips fervidana Clemens, vii, 13.
Archips afflictana Walker, v, 16.
Archips clemensiana Fernald, vii, 9
Archips persicana Fitch, v, 19; vii, 7.

Archips virescana Clemens, vi, 16.
Tortrix quercifoliana Fitch, viii, 28.
Tortrix albicomana Clemens.
Tortrix peritana Clemens, vi, 7; ix, 1.
Eulia triferana Walker, viii, 13.
Eulia politana Haworth, v, 17.
Eulia velutinana Walker, v, 5; vii, 17.
Amorbia humerosana Clemens, vi, 5, 12.
Phalonia rutilana Hübner, vi, 26.
Phalonia seriatana Zeller, vii, 15.
Phalonia angulatana Robinson.

YPONOMEUTIDÆ.

Plutella maculipennis Curtis, vi, 26.

GELECHIIDÆ.

Metzneria lappella Linnæus, vii, 7.
Aristotelia roseosuffusella Clemens, v, 10; vii, 18; viii, 1.
Aristotelia rubidella Clem., vii, 9.
Aristotelia gilvolinella Clemens, vii, 9.
Recurvaria dorsivittella Zeller, iv, 4, 14.
Paralechia cristifasciella Chambers, iv, 14; v, 5, 27.
Trichotaphe alacella Clem. vii, 25.
Anorthosia punctipennella Clemens, vii, 18.
Ypsolophus ventrellus Fitch, vii, 15.
Gelechia trialbamaculella Chambers, vi, 6, 18.
Gelechia maculimarginella Chambers, vi, 11.
Gelechia pseudoacaciella Chamb.
Gelechia mediofuscella Clemens, iv, 30; vi, 2.

XYLORICTIDÆ.

Stenoma schlaegeri Zeller, v, 15; vi, 19.

ŒCOPHORIDÆ.

Cryptolechia quercicella Clemens, vii, 10.
Machimia tentoriferella Clemens, v, 22; ix and x.
Depressaria atrodorsella Clemens, iv, 15 to v, 15.
Depressaria pulvipennella Clemens, x, 20.
Depressaria argillacea Walsingham, viii, 24.
Depressaria fernaldella Walsingham, iv, 26.
Depressaria psoraliella Walsingham, v, 17.
Depressaria heracliana De Geer, x, 22.
Semioscopsis packardella Clemens, iv, 15; v, 2.
Semioscopsis allenella Walsingham
Dasycera newmanella Clemens, vi, 19, 22.

ELACHISTIDÆ.

Coleophora cæspititiella Zeller.
Coleophora spissicornis Zell. vi, 8.
Cosmopteryx floridanella Beutenmüller, vii, 7, 18.
Cosmopteryx gemmiferella Clemens, vii, 18.
Elachista albapalpella Chambers, v, 3.
Scythris eboracensis Zeller, v, 17 to vi, 17.
Mompha eloisella Clemens, v, 23 to vi, 17.

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Bucculatrix pomifoliella Clemens, vii, 17.
Lithocolletes ostensackenella Fitch, vi, 14.
Lithocolletes nemoris Walsingham, vii, 21.
Lithocolletes populiella Chambers, ii, 9.

Gracilaria belfrageella Chambers.
Gracilaria coroniella Clem., vii, 15
Gracilaria elongella Linnæus, vii, 15, 18.
Gracilaria negundella Chambers, xii, 2.
Gracilaria alchimiella Scopoli, v, 24.
Gracilaria burgessiella Zeller, var.
Tischeria citrinipennella Clemens, v, 13.
Argyresthia andereggiella Duponchel, vii, 1, 15.
Argyresthia goedertella Linnæus, viii, 1.
Tineola biselliella Hummel, vi, 26.
Tinea defectella Zeller, v, 25, 31.
Tinea fuscipunctella Haw., vii, 15.
Tinea granella Linnæus, x, 17.
Tinea pellionella Linn., vii, 15, 18.
Amadrya effrenatella Clem. vi, 26.
Adela purpura Walker, v. 4.
Pseudanaphora arcanella Clemens, vii, 6.
Pseudanaphora mora Grote, x, 11.
Ornix crataegifoliella Clem., viii, 16

Mimicry and Protective Coloration.

By Owen S. Paxson, Devon, Pa.

Having observed many instances of both in our common insects, my theory is midway between Darwin's and that of John Burroughs'. From observations around Devon I believe that protective coloration and mimicry have not the importance scientists have so generally ascribed to it, at least in the class insecta and relatives. They are only of use to the individual for long distances, comparatively speaking.

Take for instance *Vanessa antiopa;* if it is resting on the trunk of a cherry tree eating the exuding sap, its form blends perfectly with the bark. Now, if the insect remains motionless, it is utterly impossible to see the creature at a distance of one hundred feet or more. Even if the distance were shortened to twenty-five feet, I doubt if any person would see the insect. With birds or other animals, probably depending on this insect for food, it is different; anyone would think that their eyesight would be far keener than even those of the trained entomologist. They are alert and on the watch a great proportion of time, therefore, this sense could not help being much more perfectly developed. Suppose that *Vanessa* were a solid scarlet instead of its usual coloration, anybody and any animal could detect it at a much greater distance. If the insect mimicked nothing and was much sought after for food, look at its great danger of utter extermination. Instead of being seen at a comparatively short distance (twenty-five feet or even less), an

object so colored resting on the blackish bark would be revealed to all animals in a much larger area, and would naturally disappear more quickly.

I believe that the senses and feelings, with the acts that proceed from them, are identical in all animals whether men or insects. As an example, I mean that when I once discover a certain insect, I continue to see and find it with greater ease in exactly the same situations in which I was once unable to detect it. This is owing to the fact that the eye is accustomed to the insect's blending perfectly with its surroundings, and can now separate it from these surroundings. Why should not animals be able to do the same thing? I believe they can, for their appetite is back of their being able to observe.

Last year I found several larvæ of *Papilio turnus* on the upper surface of a small tulip tree in the woods, and noticed that their bodies harmonized perfectly with the peculiar dark, bronze, metallic green. I doubt very much if I could have seen this insect at all when a short distance away, when the many leaves are considered and the darkness of the woods, together with this likeness. Even at a less distance than mentioned I could not have seen it if my eyes had not been accustomed to its form, characteristics, and surroundings, unless by accident or continued observation in one place.

The larvæ of many of the Saturniidæ have been practically invisible among the leaves of our common trees, although I knew they were present from the excrement on the ground. Surrounded by the multitudinous green leaves, varying so in light and shadow, their bodies certainly harmonize perfectly. Often have I seen the great resemblance of these larvæ to a rolled leaf, or a leaf overlapping another thus giving the appearance of a dark streak, or an imperfection. All of these conditions, when viewed from a distance, very often and strikingly appear like caterpillars. Now, if these characteristics were brought within a few feet of the observer, all the imperfections would be imperfections and nothing else; the peculiar conditions would vanish and we would only see the real insect. Distance certainly governs to a great extent the laws of protective coloration and mimicry.

A few days ago, while walking along a road, I came to a plant of evening primrose growing close to the roadside. The top was crowned with a number of its beautiful delicate flowers, one of which I noticed was of unusual appearance; on examining more closely I found *Rhodophora florida*, somewhat smaller than the flower, which had crawled into the partially closed corolla for protection and rest during the day. The limbal area of the fore wings was of a delicate yellow similar in every way to the petals of the blossom; this portion was the most conspicuous as the posterior end of the body protruded. The discal area and base were of a delicate pink, thus giving a similar effect of a partially wilted blossom. Driving or walking along the road, although not more than ten feet distant, I doubt whether any one would have seen the moth or even noticed the unusual appearance of the flower. Thus again I think that mimicry and coloration are only meant to protect the wearer from distant enemies.

Then the small spiders of varying colors to suit their habitat and *Phymata wolfii*, which secrete themselves in the crowns of the thistle, carrot, and milkweed, are totally invisible from a short distance, but as you get closer the individual soon takes definite shape in spite of its care in concealment, and its striking resemblance to the surroundings. One of these spiders recently attracted my attention; in color the abdomen was white, while the thorax was of a delicate green. As the latter was uppermost and protruded through the pedicels of the carrot, no doubt in this way it broke the solid white of the abdomen behind thus looking more like the object on which the spider rested. When seen it had come forth and tightly held a honey bee in its mandibles. Even after getting very close I could not see the creature, but the bee looked unnatural. Surely the object of all this great care, is to allow the prey to come within striking distance, when it becomes a question of which is the more agile, stronger or more alert.

The *Catocala* moths, resting during the day on the trunks of our forest trees, are invisible from any distance, but approach more closely and you will soon be able to discern their shape. They keep the hind wings covered, for if they did not, they would be like fire at night, for the contrast is as great. They

seem to know this for never is one seen on the bark with wings spread like a butterfly for any length of time.

With the Hymenoptera the conditions seem very different, for here they are protected by a sting or such contrivance; therefore, we have them moving about fearlessly and not seeking cover.

The Diptera are as a rule very quick on the wing; they that are not, no doubt have some protection, while a few mimic bees or wasps thus escaping injury or being able to accomplish more easily some mischief.

The Coleoptera are so well protected by the hard elytra and chitin that other characteristics seem unnecessary, excepting their wonderful running powers. Their flight is slow and even, and when in danger many rely on falling to the ground, when as a rule they quickly disappear.

Orthopterons have protection, like the katydid, in the grass and bushes; it being difficult to see them even at a short distance, unless in motion. Their wings are very remarkable for a close resemblance to the leaves. The walking-stick when motionless is another excellent example, and a better likeness could not be found. Many of the locusts also are wonderfully protected in their native haunts in the fields or even on the roads; this is the case with *Dissosteira*. This protection is all right until you approach too closely, for then the insect seems to know that it is valueless and immediately flies away. In this order, the Diptera, and very often but not always in the Hymenoptera, great alertness and rapidity play an important part.

The Odonata are exceedingly conspicuous in their natural haunts; even when resting they still remain so. With these insects, phenomenal swiftness in flying no doubt protects them as much as those favored with mimicry. Great alertness also goes hand in hand with their other trait.

Thus, with the insects, some are gifted with mimicry or protective coloration, while others are not so favored. From my observations it appears that only the weak and slow forms have these traits, while they that have some formidable weapon or characteristic move about with apparent impunity at all times. Of course there is great danger to all, but whichever defense they possess answers the purpose admirably, as all natural phenomena do.

A New Bee of the Genus Perdita From Texas.

By T. D. A. Cockerell.

Perdita xanthismæ n. sp.

♀.—Length a little over 5 mm; head and thorax dark shining green, with the light markings a very pale yellowish or ochreous; abdomen broad, deep honey-color, either without any distinct markings, or with brown sublateral spots on the segments, connected by obscure nebulous bands. Tongue long; first joint of labial palpi long, about or nearly twice as long as the other three combined; maxillary palpi 6-jointed; mandibles, labrum, clypeus, lateral face-marks (broad below, ending in a five point on orbital margin a little above level of antennæ), dog-ear marks, and a small transverse supraclypeal mark (sometimes evanescent) all light yellowish; cheeks simple, very hairy; front shining; antennæ a sort of pale orange, flagellum dark brown above except at tip; thorax with much white hair; mesothorax shining; upper margin of prothorax, and tubercles, light yellowish, below this the prothorax is mainly brown; pleura dark; tegulæ hyaline; wings rather milky, stigma and nervures colorless; second s. m. rather large, nearly an equilateral triangle, a little cut off at the top; second r. n. distinct, meeting second t. c.; femora dark except at apex; tibiæ and tarsi light yellowish, the tibiæ more or less darkened; claws simple. The first abdominal segment may be brown with a light band, interrupted in the middle.

Hab.—Goldthwaite, Texas, September 4, 1905, at flowers of *Xanthisma texanum*, D. C., collected by Mr. J. C. Crawford, who states that the species is found in various parts of N. Texas.

The following table separates the above species from those which most resemble it:

Vertex and mesothorax nude; very small species; face-markings white in ♂, none in ♀ . . . . . **semicrocea** Ckll.
Mesothorax more or less hairy, usually strongly so . . . . . 1.
1. Anterior femora yellow; males . . . . . 2.
Anterior femora dark, or mainly so . . . . . 3.
2. Nervures brown; face bright yellow . . . . . **rhodura** Ckll.
Nervures colorless . . . . . **sidæ** Ckll.
3. Stigma with a brown margin; abdomen bright apricot-color. **chamæsarachæ** Ckll.
Stigma with no brown margin; abdomen not so brightly colored . . 4.
4. Face-marks white, lateral marks not attenuated above (Arizona). **mellina** Ckll.
Face-marks light yellowish, lateral marks attenuated above. **xanthismæ** Ckll.

ENTOMOLOGICAL NEWS.

[The Conductors of ENTOMOLOGICAL NEWS solicit and will thankfully receive items of news likely to interest its readers from any source. The author's name will be given in each case, for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and, as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for a certain issue. Twenty-five "extras," without change in form, will be given free, when they are wanted; and this should be so stated on the MS., along with the number desired. The receipt of all papers will be acknowledged.—ED.

PHILADELPHIA, PA., DECEMBER, 1905.

One way and another we are confronted by the question of the policy of this journal. We realized the fact that we had different classes of subscribers, from the professional entomologist to the simple lover of nature, who may not even know one scientific name from another, and it has been our aim to be of use to all our subscribers. We not infrequently get letters like the following:

"Most of us would dearly like to have no work but entomology, and thus have time for all the reading and researches we want. I had a letter a few months ago from a woman in a small village. She said she was elderly, a widow, had brought up four children by going out sewing and her one amusement was collecting butterflies and moths and learning what she could of them. One of the ladies had given her an "Outlook" with a moth article of mine. She said 'I never knew before that anyone had written about such things'. She asked me to tell her of books and magazines which she could buy, as she had money saved and said: 'You don't know what it is to me to think of finding books to help me. I have been just starving for them.' To such a person the NEWS is a treasure-trove, and I hope it will keep to the popular side. For twenty-five years she had kept at her collecting without knowing the name of one species! It was as pathetic a bit of life as often comes in my way." This woman is now a reader of ENTOMOLOGICAL NEWS.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

At the annual meeting of the Entomological Society of Ontario held in October last, Professor T. D. A. Cockerell, of the University of Colorado, was unanimously elected an honorary member.

Mexican Flies in the United States.—During the past season I have taken two species of flies around Washington hitherto known only from Mexico. One is a yellowish-red ant-like Ortalid—*Cyrtometopa* (*Odontomera*) *ferruginea* Macq. It rests on the leaves of low shrubbery in June, July and August. The other fly—*Cordyligaster minuscula* Van der Wulp—is a Dexid with a clavate body, and the anterior part of wings fuscous. It was taken only twice, in July, and was at rest on the leaf of a small tree. I have also taken it at Shreveport, La.—Nathan Banks.

The Association of Economic Entomologists will hold its annual meeting in New Orleans in conjunction with the American Association for the Advancement of Science, convening for the first session on Monday forenoon, January 1st. Place and exact time will be announced in the preliminary program. It is expected that the sessions will continue for three days.

A preliminary program will be issued immediately after December 10th, containing the titles of all papers received up to that time. The secretary hopes that all members intending to present papers will send in their titles by December 10th.—H. E. Summers, Iowa State College, Ames, Ia.

Dr. Dyar fails entirely to reach the point of my inquiry in the November number of Ent. News. I wish very much to learn in what parts of the country stemmed cocoons of *Telea polyphemus* are the rule; in what parts they are equally common with the stemless form; in what parts they are not reported.

I think, but I have no copy of the Ent. News at hand, that I made no statement that the "fact" of *polyphemus* cocoons with stems was "new," but that I had never found one, had never seen one until a certain time.

Dr. Dyar should remember that comparatively few of the hundreds who study insects have large entomological libraries at their command, in daily reach as it were, and cannot afford to subscribe to all the periodicals dealing with the subject. Many of us have duties which prevent our spending hours in searching for what we want in a library which may be several miles away.

I think that many of us had supposed that a "popular" magazine like the Ent. News was intended to be of service in just such ways, as well as to give us whatever absolutely "new" and original papers were offered to it. If this is not the case it will be very easy for the Editors to say so. —Caroline Gray Soule.

THE Cambridge Entomological Club held an exhibition of insects on Wednesday, Thursday, Friday and Saturday, November 1, 2, 3, 4, at the rooms of the Appallachian Mountain Club in the Tremont Building, 73 Tremont, corner of Beacon Street, Boston. The exhibition was similar to that of last year, illustrating the insects of the neighboring country, life histories, variation, insect injuries and other matters of general interest. The exhibit was in charge of W. D. Denton, C. W. Johnson and J. H. Emerton.

THE MIGRATIONS OF BUTTERFLIES.—The great flights of butterflies, which flutter by millions along some rivers in South America, have been described by several travelers in the Amazon valley, but according to a writer in the *Revue Scientifique*, no one has yet succeeded in accounting for them satisfactorily. An account of some recent observations, abstracted from *The Bulletin* of the Para Museum, appears in the former periodical (May 20). Says the writer:

"The migrations of birds are well known, but those of butterflies do not appear to be so generally recognized. M. Goeldi, the director of the museum at Para, Brazil, gives some information about such migrations in the Amazon valley, which are positively huge. The author states that he was deeply impressed in 1870 by a migration of this kind, lasting nearly an hour, which he witnessed in Switzerland, near Lake Neuchatel. This was composed of an enormous number of individuals of *Pieris brassica*. These pierides also made up the flight of butterflies in the Amazon valley.

"Such flights have been noted several times, especially by Bates, by Spruce (in 1849), and also in an old Brazilian chronicle in 1615. But some of the authors declare that the flights were southward and others that they were northward. M. Goeldi has reconcilcd these stories; he followed, on the Rio Capim, a flight of these myriads of butterflies, and showed that the direction varied with the period of the journey.

"The flights were composed exclusively of pierides, of which about 99 per cent. were *Catopsilia statira* and the rest almost entirely *Eurema albula*. Goeldi took instantaneous photographs of the butterflies, of which one is very interesting since it represents a passing irregularity in the disciplined order of their flight; in certain places columns are detached, make a detour, and rejoin the main body later, after describing a sort of circle.

"The excursionists who thus detach themselves temporarily, also do so to direct their course toward a leguminous tree of frequent occurrence on the banks of the Rio Capim. It is called in Brazil the arapary. . . This tree at the time of the observed migrations (July-August) is in flower, and the blossoms, though not visible to a great distance, give out an intense perfume. The flower has a nectary to which the insects resort to get the juice. It is always in the neighborhood of these trees that the butterflies make their detours. The trees are very characteristic of the river-banks of the Amazon basin, and must offer a highly prized

food to the pierides of the region, which perhaps do the tree a service in aiding its pollinization. But what is the cause of these immense flights—of these enormous assemblages that move in masses along the rivers? M. Goeldi does not attempt to explain them. Spruce thought that the flights were mostly of males and on the other hand that the migratory instinct of the females was to be explained by the necessity of seeking certain species of mimosas to lay their eggs thereon. But so far as we know, no one has advanced any satisfactory explanation of the reason why myriads of pierides should thus join in a common flight."—*Translation made for* THE LITERARY DIGEST.

New Haven, Ct., Aug. 4, 1905.

DEAR NEWS.—I trust that you will allow me space in your columns to call attention to a few good and bad features in the mechanical "make-up" or form of insect catalogues, check lists and monographs. Catalogues and lists are used not only by the specialist, but also by the general worker and amateur. Curators of collections, perhaps, are obliged to use them as often as anyone, and it is in their behalf that I would speak. I have just been examining Prof. J. M. Aldrich's Catalogue of North American Diptera, and have noted its many admirable features. The specific name in heavy faced type at the left margin of the page, with the references indented, is a convenient arrangement, and is found in Dyar's List of Lepidoptera, though in the latter numbers precede the specific names. The numbers are omitted from Aldrich's list, but except for those who exchange and write about species in numerical terms this is hardly an inconvenience, as the species are arranged alphabetically under each genus. The references, where each author's name begins a separate line, are certainly more convenient than when arranged as in Dyar's list, though not so economical of space. Localities printed on the right margin of the page, as in Dyar's list, certainly facilitates looking up the distribution of a species, and must be considered a good feature.

But one of the chief disadvantages of both books just mentioned is that the running titles at the tops of the pages give no idea of the contents of the pages under them, but are the titles of the book. Not so with Osten Sacken's catalogue, where only the name of the family appears at the top of each page.

From the usual arrangement, where the name of the institution or the title of the book is continued as a running title throughout the work, we find the other extreme in Mrs. Fernald's list of Coccidæ, where running titles are omitted altogether. Smith's Insects of New Jersey would be far more convenient for ready reference if the right-hand page gave as a running title the name of the order, if not the family, treated on that page. It is probably unnecessary that such a title be printed on both pages, and the ideal arrangement seems to be that found in the following works: Williston's North American Diptera; Saussure's American wasps; Cresson's North American Hymenoptera; Hagen's North American Neuroptera, and Leconte and Horn's Classification of North American Coleoptera.

In the following works the running titles are abbreviated forms of the names of the works, or at least give no more specific idea of the contents of the pages under them:

Dyar's List of Lepidoptera; Smith's Check List of Lepidoptera; Smith's Catalogue of Noctuidæ; Smith's Insects of New Jersey; Henshaw's List of North American Coleoptera; Wiilistcn's North American Syrphidæ; Aldrich's North American Diptera; Ashmead's North American Proctotrypidæ; Blatchley's Orthoptera of Indiana; Scudder's Melanopli; Hancock's North American Tettigidæ.

I am well aware that this may seem a very unimportant matter to the author of a catalogue or list, and also that in most cases the authors probably have nothing to say about it, but the printing is done according to the rules adopted by the institution or official department issuing the publications. Nevertheless, where one has occasion to look up several hundred references in a day, he finds these little matters of considerable value as guides. Without them he must depend largely upon the index.—W. E. BRITTON.

Entomological Literature.

NORTH AMERICAN PHYLLOXERINÆ AFFECTING HICORIA (CARYA) AND OTHER TREES. By Theodore Pergande. Reprinted from Vol. ix. Proceedings of the Davenport Academy of Sciences. Davenport, Iowa.

A contribution to these little-known insects of 89 pages, 21 plates. All the old species of these plant lice have been studied and twenty new species and varieties made known. An interesting account of the life history of one of the new species, *P. perniciosa*, is given, and is characteristic of the majority of the species inhabiting hickory. It is of great value to have such an excellent treatise on these obscure and little-studied insects. The author says: "since the species treated of in this paper comprise but a fraction of those inhabiting the United States there remains still a large field for fruitful investigation which may amply occupy the lifetime of those selecting it as a specialty."—H. SKINNER.

THE BUTTERFLIES OF THE WEST COAST OF THE UNITED STATES. Illustrated by 940 figures in Color-Photography of Butterflies from the West Coast, nearly all of which were captured by the Author, with accurate data for each specimen. With Colored Figures and Descriptions of many New Species and New Varieties. Now first Published. By William Greenwood Wright. The Whitaker & Ray Co., San Francisco. Price $4.co.

This is a very valuable contribution of 257 pages and 32 plates, with nearly 1000 figures, and the author is to be congratulated on getting out

such a valuable work, which represents his labors in this field for twenty-five years. The book is published in good style, the typography being excellent, and the half-tone work equal to any we have seen. This is somewhat marred by the faulty technic in setting the specimens and in many cases the specimens were in very poor condition. The first 30 pages are devoted to the general features of butterfly life, including rearing, collecting and preserving. The names of the authors of species and the generic names are omitted in the body of the book, and all specific names are capitalized. A valuable feature is the list of butterflies of the United States with the names of the coast species in black-faced type. There is also a list of new species and varieties published in this book and a list of some old species, generally unknown, herewith illustrated or described. Then follows the descriptive part of the work. The author has wasted some space in figuring trifling varieties, considered by most writers as synonyms. This sort of thing is shown in pl. 1, figs. 2 and 2b, 4 and 4b, 5 and 5b. The differences described in the text are not borne out by the figures, and any good collection of *smintheus* would show variations of far greater extent and more worthy of names. Figs. 4 and 5 are about as near alike as individuals get to be. This sort of thing reduces natural history to an absurdity. *P. magnus*, pl. 2, fig. 13, hardly warrants a varietal name. *Parnassius eversmanni* has been taken in some numbers in recent years in Alaska, and is so recorded in the literature. *Pieris ochsenheimeri* is a distinct species and is well figured in Romanoff's great work. It is not a form of *rapæ*. Figs. 112, *a*, *b*, pl. XII, are not *carpenterii* but *bremnerii*. *Carpenterii* is a form of *cybele*. Figs. 119, *a*, *b*, are not *bremnerii* but *rhodope*.

Some of the localities given are very vague and indefinite. This should not be, as the author was the collector. Central California is a pretty big place and so is Southern Arizona. The new species *Melitæa eremita* and *M. hermosa* are given these indefinite localities. We see no advantage in describing such things as pl. 20, fig. 181. Mr. Wright has described in *Melitæa* a number of aberrations which are common in the genus, but as they are figured, perhaps there is no harm done! Pl. 25, fig. 277*b* is not *Cœnonympha kodiak*, but is the common *californica*. Figs. 282, *a*, *b* are not *brenda* but are *ampelos*. Fig. 283 is not *pamphilius*. The figures on plate 26 of the *Chionobas nevadensis* group show the absurdity of making species out of them. They occur in many places in their ranges of territory and are not confined to the restricted areas given by Mr. W. H. Edwards. *Lemonias zela* ♂ and *cleis* ♀ are one and the same species. Pl. 27, fig. 322, *b*, *c* is not *Thecla spinetorum*. Pl. 28, fig. 347, *b* is *Chrysophanus hermes* Edw. and San Diego is the type locality. Figs. 352 and 353 on pl. 28 are the same species. *Lycæna monica* Reak. is a synonym of *cnejus* and came from the East Indies. The same may be said for *tejua* which is a synonym of *strabo* Fab. (see Streck. Rhop. et Het. Suppl., 3). Figs. 400 and 401 probably represent one species. 408*b*, *c* is not *Pholisora lena* but the common *Thymelicus garita*. 426 is

not *P. columbia*. 430 and *b* are both males. 431 and *b* and 432 and *b* are also males. *Agricola* and *nemorum* are badly mixed. Fig. 437 is not *Pamphila brettus* ♂ but is *P. phylæus* ♁. The female is *brettus*. 438 and *b* are *Pamphila phylæus* ♂ and ♀. Figs. 464 and 468 appear to be *funeralis* ♀. 469 is not *tristis* but *juvenalis* ♁. 480 looks like *icelus*.

With the west coast butterflies figured the entire territory of the United States is fairly well covered, and our knowledge of North American butterflies will make rapid progress. Progress is, however, not advanced by describing aberrations, geographical races, mutations, varieties, etc., unless they are accurately figured as they are in this book. We were delighted to see Mr. Wright's work, and our purpose in speaking of errors is to place the things correctly for the future.—H. SKINNER.

This, the first book to be published west of the Mississippi on butterflies, will mark an important epoch in the study of the butterflies of California, which will be commented on again, in a short sketch of the development of Californian entomology, which has been prepared by the writer.

Mr. Wright is, at present, the oldest living collector and student of Californian entomology, and this book represents, practically, his life-work.

The dedication to W. H. Edwards is very fitting, as marking the life-long friendship and mutual help.

The photo of the author, as the frontispiece, is a pleasant addition.

Originality of writing and of work and thought and to some extent the idiosyncrasies of the author are exhibited from the preface to the last page, which will be no doubt evident to the reader.

The spirit in which the book was written, to preserve what is known of the Californian butterflies and the life-work of the author, is to be commended. It only makes one more than lament the fact that Dr. Behr did not do the same thing.

To proceed to the main body of the work; most of the species are illustrated in the beautiful plates, and hardly need any further delineation, so the author takes advantage of this, and except in the cases of new species, the descriptions are brief or eliminated, and in their places interesting notes on habits, occurrence, etc., are given.

Now having shown the general excellence of the work, and the place it will take in future work, as a classic really, and the marking of a new epoch, we will proceed to point out the few errors which occur to us.

The comments on subspecies, varieties and aberrations are to the point, but the definition of a subspecies—as a geographical variation—is not brought out strongly.

The capitalization of specific names is against the rules laid down by the A. O. U. Committee on Nomenclature, but there is not any very serious harm done here by so doing.

In the part treating of the general biology of butterflies, of which forty-

five brief sections are given, the short and interesting diversions are instructive and pleasing, and are what might be termed *rafinesque;* where they discuss the subject theoretically they seem curiously uninformed, but where they reveal the personal observations of the author, they contain genuinely valuable material.

Twenty-nine new species and varieties are described, and fifteen others previously described, but which have been little known or ignored by previous writers, and here put on a firm basis.

Del Sud for a specific name was an unfortunate piece of work; the two words should be connected by a hyphen, and with a small *s*, or the two made absolutely into one word, which would be much better.

Lycæna icariodes and *dædalus* have certainly had more than their share of trouble at the hands of systematists, but their troubles are not over yet, as Mr. Wright has named both wrongly; the discussion will not be taken up here, as the writer is working on a revision of the group, which he hopes will straighten things out.

Lycæna maricopa probably refers to one of the preceding species.

Lycæna antiacis is wrongly identified, the one Mr. Wright has under this name being *polyphemus* Bd. *Antiacis* is only found on the sand hills near San Francisco, and is entirely distinct. It is neither figured nor described in this book, but is closely allied to the one figured as *mertila*, which is probably the same. The mistake is continued in the description of *behrii*.

Lycæna melimona described as new, is the same as *Lycæna emigdionis* described in ENT. NEWS for last May; the latter has priority.

Pamphila chiaspa described as new is the same as *Pamphila tecumseh*, described from the high Sierras, in ENT. NEWS, January, 1903; the last name has priority.

Pamphila errans probably never was taken in Yosemite; its record from there is a curious error which has crept in.* The species is an inhabitant of the sea-shore from Santa Barbara to San Diego, a few feet from the water. The larvæ feed on grasses.

The occurrence of *Megathymus neumoegenii* in Southern California is certainly a very interesting fact.

Nisoniades lacustra is the same thing as *Nisoniades callidus* described in ENT. NEWS for April, 1904; the last name has priority.

The figures of *Thecla spadix* are very poor, or do not represent the species at all. It is difficult to tell what species is intended to be represented here.

Lycæna pheres is not named correctly; I am not positive yet what species is intended to be figured here.

The forms figured as *b* and *c* under *Lycæna shasta* are *Lycæna melimona* (*emigdionis*), forms of it probably. There must be a curious polymorphism here.

Heretofore, eastern men have discussed the position and natural his-

* Type collected by Dr. Dyar.—H. SKINNER.

tory of our Californian butterflies, when, in fact, they positively have not had the least correct idea of things. In order to understand the nature of anything in California, a residence right here, in order to become thoroughly acquainted with things and the surroundings, is imperative. And I consider it a very fortunate thing for entomology that Mr. Wright has written this book, which in a measure is bound to open the eyes of eastern men and teach them how to look at things Californian.

This book will start a new epoch in which a new vigor will grow up, and not waver until the whole of California has been gone over carefully, the complete distribution of the butterflies worked out, and the complete life history of every single species described in detail and represented in drawings.—FORDYCE GRINNELL, JR.

Doings of Societies.

At the meeting of the Feldman Collecting Social of Philadelphia, held October 18, 1905, nine members were present. Mr. Beutenmüller and Mr. Kaber visitors.

Mr. Beutenmüller spoke of his work on the Cecidomyidæ, and stated that he has raised many new species of gall-flies this year. The same speaker told about his experiments with the chrysalids of *Vanessa antiopa* and *Grapta interrogationis*, which he had placed in a refrigerator, the former producing specimens like those from Alaska, and on the latter the markings on the under side of both wings were very much intensified. Mr. Beutenmüller also reported the capture of *Hypomolyx pineti*, taken on the summit of the Black Mountains on balsam (*Abies frazieri*).

Dr. Skinner spoke of the distribution of *Vanessa antiopa* and stated that the Pacific coast specimens are closely allied to the European form, and that they can only be distinguished from them by the band which is less irrorate in the European specimens. Dr. Skinner also spoke of chrysalids of *antiopa* which were sent to England by Dr. Fletcher, the same all emerging as the variety *lintneri*.

Mr. Haimbach exhibited some rare or at least little known Tortricids, among them being *Olethreutes hemidesma* taken near Perkasie, Pa., on June 18, 1905, *Eucosma adamantana*, Lucaston, N. J., *Thiodia offectalis* taken near Perkasie, Pa., June 18, 1905, *Gymnandiosana punctidiscanum* taken at Phila-

delphia, May 29th to June 11th, and two undescribed species, one from this city and the other from Anglesea, N. J.

Mr. Huntington reported capture of *Dipalta serpentina* taken at Lehigh Gap, July 14th.

Mr. Harbeck reported four species of *Chrysops* new to New Jersey list, *cursim* and *mitis* taken at Jamesburg on July 4th, *sequax* taken at Clementon and Ashland, and *brimleyi* taken at Clementon, May 30th, also *Tabanus astutus* Jamesburg, July 4th, which is the second specimen taken in New Jersey.

Dr. Skinner spoke of collecting insects after a hail storm and thought the collecting for Coleoptera on the ground might be good at such times.

FRANK HAIMBACH, *Secretary*.

A meeting of the American Entomological Society was held October 26th, Dr. P. P. Calvert, president, in the chair. Thirteen persons present.

Mr. E. Daecke said the normal eye maculation of *Chrysops*, consists of a band, the occipital border, then an arrow-head mark with a linear shaft, and three variable spots in front. The modification of the normal in different species was illustrated by sketches and the useful characters indicated. The eyes of the sexes were found invariably different in the species studied.

Mr. Matthews exhibited some rare and beautiful beetles from Japan and Brazil, in Riker mounts.

Mr. Rehn said he was working on the South Amercan Tryxaline genus *Orphuella*. He had one hundrd and fifty specimens for study, but failed to recognize more than one, or at best two, species from this material.

Dr. Skinner exhibited some new and rare beetles from Arizona.

Mr. Matthews reported finding many *Tenodera sinensis* on thorn (Cratægus) which they appeared to select. Dr. Calvert exhibited the Simplex net, which occupies a small space and is reasonable in price. It is made at Lake Forest, Illinois. Mr. Haimbach reported experimenting with the rapid drying of lepidoptera on the setting boards by placing them in an

oven. One lot came out in fine condition and another one incinerated; he had forgotten them. The value of the method in killing possible parasites was mentioned. Mr. Daecke reported having taken the following species of *Chrysops* in New Jersey during the last summer: *celer*, *fugax*, *amazon* (n. sp. allied to *callidus*), *niger*, *brimleyi*, *nigribimbo*, *plangens*, *callidus*, *montanus*, *delicatulus*, *pudicus*, *cursim*, *flavidus*, *indus*, *vittatus*, *univittatus*, *brunneus*, *obsoletus*, *mœchus*, *fallax*, *bistellatus*, *striatus*, *sequax*, *morosus*. These are new records.

HENRY SKINNER, *Secretary*.

Minutes of meetings of Brooklyn Entomological Society held at the residence of Mr. George Frank, 1040 Dekalb Avenue, Brooklyn, N. Y., February 2, 1905. Nine persons present. Mr. Charles W. Leng acted as chairman pro tem, in the absence of the regular officer.

Mr. Leng exhibited a series of specimens of the species of *Cicindelidæ* taken within one hundred miles of New York City and gave brief details of the life history of each including locality and date of capture. *C. unipunctata* had been taken in July, along the mountain drive at Plalnfield, N. J., where it was secreted in holes at the side of the road, the head generally alone being visible. When alarmed it quickly retreated out of sight. *C. rufiventris* occurred in July at East Plains, ten miles inland from Barnegat, and *C. abdominalis* in July and August in the Pine Barrens.

Mr. Frank presented his paper upon the genus *Argynnis* with reference to the species *monticola var.* (a) *purpurascens*, *halcyone* and *rhodope* with specimens illustrating the same arranged in series, exhibiting gradations ranging from the extreme light form of *halcyone* to *monticola* and its variation *purpurascens* and thence shading to the dark form distinguished as *rhodope*.

March 2, 1905. Sixteen persons present, the president in the chair.

Mr. R. F. Pearsall read a paper upon the "Geometrid Genus *Venusia* and Included Species," accompanied by a series of specimens embracing *Venusia cambrica* and *comptaria* taken

in July in the Catskill Mountains, *V. duodecimlineata* taken in May at Las Plumas County, California, and *Euchœca salienta* (n. sp.) Pearsall, taken in April in this locality and adjoining States. His investigations of the antennæ of *duodecimlineata* showed them to be unipectinate, while those of *cambrica* were bipecinate. He had therefore placed the former in a new genus to be designated as *Nomenia*.

The death of Dr. Alpheus S. Packard having been announced, after full expression by those present of the great value and scope of his scientific work, resolutions of regret and condolence were duly adopted.

April 6, 1905. Seventeen persons present, the president in the chair. Mr. Alois Van Pellenburg, of Brooklyn, was duly elected a member.

Mr. Zabriskie exhibited some sample trays of his own device containing phials for the arrangement, handling, preservation and easy examination of minute specimens in liquids, with detailed explanations of the methods employed by him in the construction and joining of the several parts. The phials contained a mixture of equal portions of Price's English glycerine and water with one drop of carbolic acid to an ounce of the liquid. The soft parts of specimens immersed in this solution, after fourteen years were still sufficiently pliable to admit of ready dissection. The trays could be conveniently handled, held in any position without displacing the phials, the contents of which could be plainly seen and each phial removed without disturbing the others.

Prof. Smith gave some details connected with his work in perfecting an entomological dictionary under the title of "Chips from the Glossary," showing the difficulties in nomenclature that had to be overcome, particularly as to the disagreement among various authors in the application of terms and the multiplication of technical expressions, and exhibited a number of drawings showing structural parts to be employed as an aid to the definitions given in the text.

May 4, 1905. Thirteen persons present, the president in the chair. The resignation of Mr. Pearsall as librarian was read and accepted with regret and also with thanks for his effi-

cient services for some years past, and Mr. Ernest Shoemaker was elected librarian in his stead.

Mr. William T. Davis related some interesting facts concerning his observations upon the diurnal flight and emergence from ponds of various species of water beetles, particularly the larva of a large dytiscid which, forsaking its native element, disported itself on a bright sunny day over a mat of moist leaves.

Mr. Pearsall stated that he had captured a number of *Cychrus viduus* under the rough bark of maples in the Catskill Mountains.

June 1, 1905. Seven members present, the president in the chair.

The Secretary reported the capture on May 10th, at sugar, of a specimen of *Catocala nubilis* and that he had in past years taken other specimens of this moth at about the same date, as well as *C. elonympha*, and subsequently obtained fresh specimens of these same species in July and August, which would seem conclusive proof that they were double-brooded. The Secretary further related a number of his recent experiences in hiving bees, among them, that of an exceedingly large swarm which collected about ten o'clock in a very inaccessible position some twenty feet from the ground on one of the small apical branches of a pear tree. Having but a few minutes in which to take a train, he hastily ascended the tree by a ladder, shook the entire swarm, so far as he could discover, into a large water beetle net and transferred it to a hive which was duly placed. When he returned, late in the afternoon, some eight hours afterward he found the swarm again in position on the tree, prepared to pass the night, the queen probably not having been secured, but having delayed flight until the re-assembling of the entire swarm could be effected, which enclosure within the hive had delayed until too late to secure a new habitation. As soon as the sun disappeared the branch was sawn off, carried down the ladder, with much effort on account of the great weight, but without dislodging a single bee, and the swarm successfully deposited in the hive.

ARCHIBALD C. WEEKS, *Secretary.*

EXCHANGES.

Not Exceeding Three Lines Free to Subscribers.

☞ These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and only when necessary those at the top (being longest in) are discontinued.

Wanted.—As complete a named set as possible of the Pyralidæ of North America. Can offer fine named Indo-Malayan Lepidoptera in exchange. Ernest Swinhoe, 6 Gunterstone Road, West Kensington, London W, England.

Proctotrypoidea Wanted.—Will identify specimens for privilege of study, or will take them in exchange for identified specimens of other groups.—C. T. Brues, Public Museum, Milwaukee, Wis.

Lepidoptera from Southern States wanted in quantity for cash.—Please make offer to Charles Faust, Harvard, Ill.

Elateridæ and *Buprestidæ* wanted from all parts of North America, in exchange for North American Coleoptera. Cash paid for special desiderata.—C. O. Houghton, Del. Coll. Agric. Expt. Sta., Newark, Del.

Ova wanted.—I will pay 3 cents each for any number up to 100 of fertile eggs of *Enchætisa Orgenensis* accompanied by the parent female. —H. H. Lyman, 384 St. Paul Street, Montreal, Canada.

I have many fine specimens of Entomology in papers left over from last season and will exchange and collect in this locality for Southern and Western specimens.—C. H Ross, Des Moines, Iowa.

Wanted to Exchange.—Butterflies and moths from every country in the world. Many beautiful foreign specimens to exchange. California specimens in large quantities.—R. C. Winslow, Santa Clara, California.

Wanted.—Insect Life, Vol. iii, 2, 4, 11, 12; iv, 5, 6, 7, 8, 9, 10; v, 3, 4; vi, 3. Also other works on economic entomology not in my library. Will pay cash or exchange.—J. C. Crawford, Box, 208, Dallas, Texas.

Wanted.—Records of Captures of Connecticut insects—especially the rarer species—for the preparation of a State list. Orthoptera and Hymenoptera records desired at once.—W. E. Britton, State Entomologist, New Haven, Conn.

Wanted mounted humming birds and other brilliant colored birds, in exchange for rare exotic, native butterflies and moths, cocoons of *Ceanothii, Gloverii* and pupæ and cocoons of other species.—C. F. Timm, 170 Bleeker St., Brooklyn, N. Y.

Cicindelidæ of the world desired. Good exchange offered.—H. F. Wickham, Iowa City, Iowa.

Wanted.—Specimens and data concerning parasitism by Strepsiptera (Stylopidæ). Correspondence solicited.—W. Dwight Pierce, Box 208 Dallas, Texas.

Coleoptera.—Many rare species offered in exchange.—Geo. W. Bock, M D., 1221 Morrisson Ave., St. Louis, Missouri.

I have the life history in Riker mounts of *Alaria florida, Utethesia bella, Synchlæ genutia, Vanesse io* and others for exchange.—Carl Ilg, 2539 Douglas St., Phila, Pa

Wanted for cash, 100 *A. ceanothi* cocoons.—Geo. Kircher, 136 Grace St., Jersey City, N. J.

Luna cocoons in exchange for exotic Lepidoptera.—M. F. Reyher, 1601 Willington St., Philadelphia, Pa.

Cocoons of *S. cynthia, A. promethea* and *A. cecropia* in large or small quantity to exchange for other North American pupæ or Lepidoptera in papers.—John H. West, 2235 E. Letterly St., Phila., Pa.

Coleoptera.—Aleocharidæ of the world wanted. Will give good exchange in California Coleoptera.—A. Fenyes, M.D. Pasadena, Cal.

Correspondence wanted, especially from Southern and Western States, Central and South America in order; to exchange living pupæ and cocoons, also butterflies and moths in papes.—Herman J. Erb, Union Hill, New Jersey.

Wanted.—Cocoons and pupæ of North American Lepidoptera for cash or exchange.—Amer. Ent. Co., 1040 DeKalk Ave., Brooklyn, N. Y.

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Entomological News

AND

PROCEEDINGS

OF THE

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OF THE

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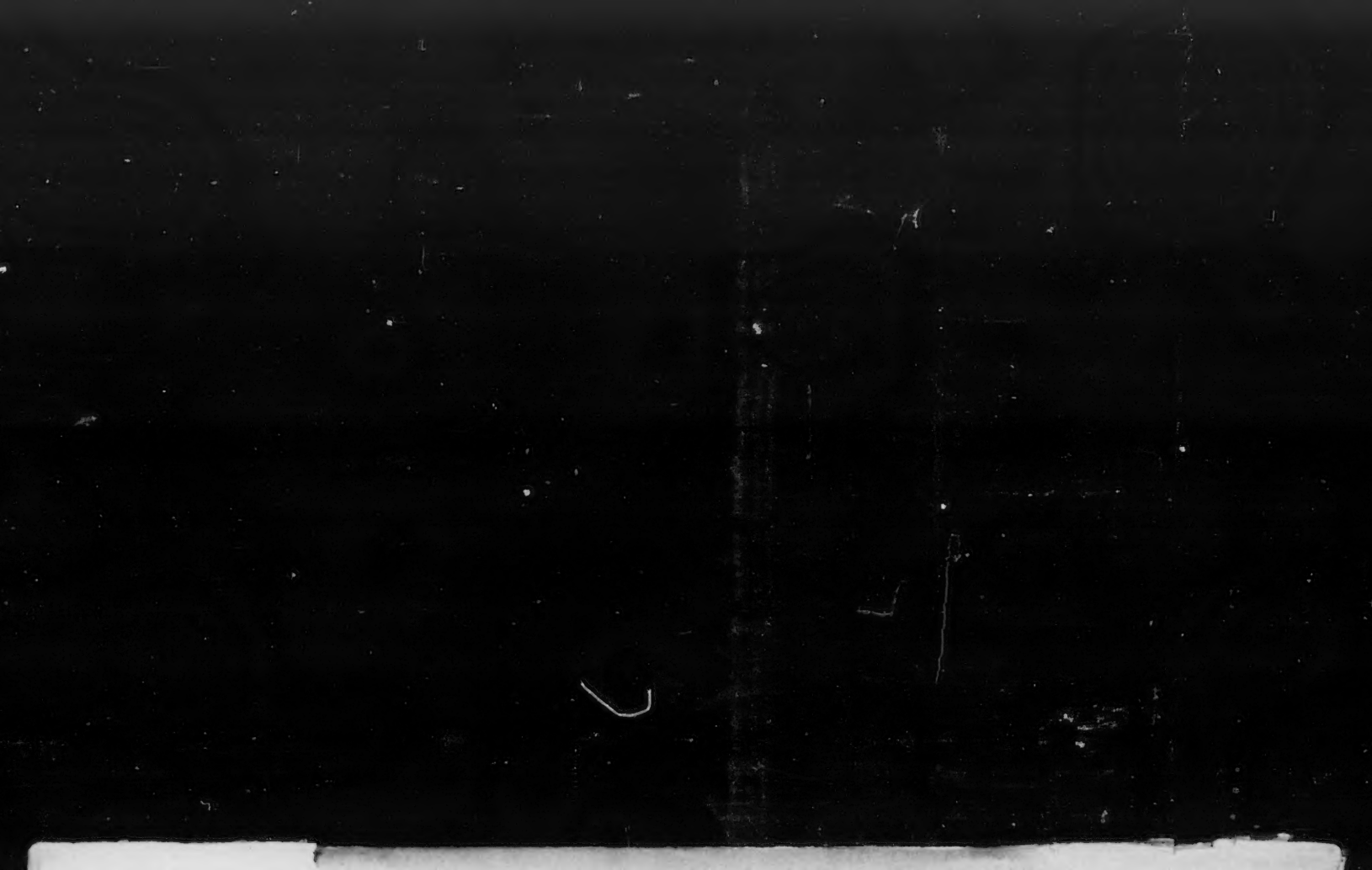
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